

Structural changes produced in diesel soot by the addition of ferrocene to the fuel

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Inhalt It is common knowledge that catalysts are being used for the generation, refinement and purification of petrochemical products such as transportation fuels. Here I show how the *combustion* characteristics of diesel fuel is catalytically modified in such a way that the amount, particle size, morphological and molecular structure of the exhaust are drastically altered, when ferrocene is added to the fuel. The purpose of this step is to facilitate soot oxidation in exhaust abatement and aftertreatment devices.

Structural and chemical analyses of the products with synchrotron radiation and Moessbauer techniques reveal that ferrous and carbonaceous submicron and nanoscale particle polymorphs are formed during catalytically assisted combustion, part of which are known to impose oxidative stress on lung cells and to potentiate the genotoxicity of PAHs.

Indeed, adding ferrocene to the fuel helps reducing and oxidizing soot, but we must be cautious with respect to the extra toxicity of the newly formed particulates, in particular with view of the potential environmental and epidemiological consequences upon their release.

What happens to be a success for the combustion and fuel engineer, might be a nightmare to the toxicologist.

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Eintritt frei, Gäste willkommen

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